

REMARKS

Applicants hereby acknowledge the Examiner's withdrawal of all previous rejections in view of the response and amendments to the claims dated January, 18, 2006.

The Examiner has reinstated the prior double patenting rejection that was previously withdrawn, stating that Applicants' narrowing amendment makes the claims an obvious variant of co-pending application 10/359,796 for the reasons stated in the original office action. It is again submitted that this ground of rejection is improper. Initially, Applicants' respectfully question how the narrowing amendment to the claims from the January 18, 2006 response, in which the only amendment was limiting the fabric base to a woven fabric, would justify the prior double patenting rejection being reinstated. The Examiner has already acknowledged Applicants' broader claim language to be patentably distinct from the reference claims. The Examiner has not explained how the narrower claims are no longer patentably distinct from the claims of co-pending application 10/359,796.

It is respectfully urged that the presently claimed invention and the claims of 10/359,796 remain patentably distinct in view of the prior amendment, and that the rejection is incorrect. Specifically, the present application claims:

1. An abrasion-resistant skirt **material for use with** air cushion vehicles having at least one air chamber, said skirt material comprising:
 - (a) a woven fabric base, comprising yarns of an ultra-high molecular weight polyethylene;
 - (b) a bonding layer, comprising a thermoplastic material bonded to the fabric base; and
 - (c) an outer layer, comprising a rubber compound bonded to the bonding layer.

15. A lightweight, abrasion-resistant sheet material, comprising:
 - (a) a woven fabric base, comprising yarns of an ultra-high molecular weight polyethylene;

- (b) a bonding layer, comprising a thermoplastic material bonded to the fabric base; and
- (c) an outer layer, comprising a rubber compound bonded to the bonding layer.

In contrast, co-pending application 10/359,796 claims:

1. A lightweight and durable **skirt assembly** for an air cushion vehicle having a rigid support structure, the skirt comprising: (a) **at least one air chamber**; and (b) the air chamber is formed from a substantially air impermeable, laminated sheet material, the laminated sheet material comprising a fabric made substantially from yarns that are formed from polymers of ultra-high molecular weight polyethylene, the fabric being laminated with a thermoplastic film.

As one can see, the claims are of considerable different scope from one another. The present application claims a three-layered sheet material that is fabric base/bonding layer/rubber compound containing layer. Co-pending s/n 10/359,796 is not claiming a sheet material per se but rather a skirt assembly having an air chamber. The present application does not claim a structure having an air chamber. Co-pending s/n 10/359,796 is not claiming a three-layered sheet material that is fabric base/ bonding layer/rubber compound containing layer. Although it *uses* a fabric, the claims do not mention a fabric with a bonding layer nor an adjacent rubber compound containing layer. For these reasons one can see that the claims of the instant application are significantly different from, and would not be obvious over the claims of co-pending s/n 10/359,796.

Moreover, the fact of whether the fabric used to form the laminated sheet material of 10/359,796 is woven or non-woven is not germane to whether or not the two applications are patentably distinct from one another. Even if the fabric of co-pending s/n 10/359,796 was limited to a woven fabric, the two sets of claims would still be patentably distinct for the same reasons that the Examiner has previously acknowledged. It is respectfully submitted that this ground of rejection should be withdrawn.

Claims 1-28 stand rejected under 35 U.S.C. 103(a) over U.S. patent 3,966,012 to Crewe in view of U.S. patent 6,280,546 to Holland et al. and further in view of U.S. patent 3,511,331 to Landry. It is respectfully submitted that the rejection is incorrect and should be withdrawn.

The present invention claims an abrasion-resistant skirt material for use with air cushion vehicles having at least one air chamber, and also teaches a lightweight, abrasion-resistant sheet material. In each embodiment, the material comprises (a) a woven fabric base, comprising yarns of an ultra-high molecular weight polyethylene; (b) a bonding layer, comprising a thermoplastic material bonded to the fabric base; and (c) an outer layer, comprising a rubber compound bonded to the bonding layer. This structure is not taught or suggested by a combination of the cited references.

Crewe teaches an air cushion vehicle having a flexible skirt assembly, which skirt assembly includes a bag member 12 and a reticulated member 18. Bag member 12 is formed from sheet material 14, and reticulated member 18 is formed from fibrous strands or metallic wires to form a net. In contrast to the Examiner's assertion, Crewe does not teach that the sheet material 14 is coated with a natural or synthetic rubber. Rather, at col. 1, lines 55-57, Crewe makes a reference to the prior art stating that it is known to manufacture a flexible material for air cushion vehicle skirts comprising a woven fabric coated with a rubber. Aside from this reference to the prior art at col. 1, lines 55-57, Crewe does not again mention the use of rubber in association with their invention. an outer layer, comprising a rubber compound bonded to the bonding layer.

Additionally, in further contrast with the presently claimed invention, bag member 12 and reticulated member 18 are not bonded to each other. Rather, members 12 and 18 are attached to the rigid structure of the air cushion vehicle. Indeed, while reticulated member 18 does surround the outer surface of the bag member 12, member 12 and member 18 are not even in direct contact with each other, being separated by a buffer

material 19 to prevent chafing of the bag member due to movement between members 12 and 18 (see col. 2, lines 27-32). Crewe describes that buffer 19 may be of a fibrous or foam construction, and buffer 19 is also not bonded to either of the bag member 12 or reticulated member 18. While, Crewe does not specifically state that buffer 19 is mandatory, they do not describe any embodiment that does not include the buffer 19. More importantly, because bag member 12 and reticulated member 18 are not bonded together, the absence of buffer 19 would result in undesirable chafing causing deterioration of the bag member. Accordingly, Crewe certainly teaches away from any skirt assembly having a bag member 12 and reticulated member 18 in contact with each other.

Crewe also fails to teach or suggest a skirt material comprising an outer rubber layer. The Indeed, when applying the Landry reference, the Examiner acknowledges that Crewe fails to teach multiple coating layers. This appears to be an acknowledgement that Crewe fails to teach a rubber coated fabric. Even should one assume hypothetically that the fabric 14 of Crewe was rubber coated, the outer surface of bag member 12 is surrounded by the reticulated member 18. Accordingly, even when hypothetically assuming that fabric 14 is coated with a rubber, and assuming that the hypothetical rubber and fabric 14 were bonded via a thermoplastic bonding layer, the skirt structure of Crewe would be the reverse of the claimed invention, failing to teach an outer rubber layer. It is respectfully submitted that one of ordinary skill in the art would not even look to Crewe to arrive at the presently claimed invention, let alone have a reasonable expectation of success in forming the present invention upon reading the disclosure of Crewe.

As the Examiner acknowledges, Crewe also fails to teach that their bag member 12 may be formed from yarns of an ultra-high molecular weight polyethylene. In order to fill this void, the Examiner has applied Holland, et al. It is respectfully submitted that Holland, et al is inapplicable both to the present invention as well as the Crewe reference.

Particularly, the Holland, et al reference makes no mention of a potential use of their

material for a hovercraft skirt. Rather, Holland, et al. relates to applications such as sail cloth, cargo container covers, side curtains for side-access trucks and bulk mail bags. Furthermore, like Crewe, Holland, et al does not pertain to structures having a rubber containing layer. Holland, et al pertains solely to a method for laminating a thermoplastic film to a high performance fabric, particularly without losing strength or degrading the high performance fiber. There is no teaching or suggestion or other appropriate nexus between Holland, et al. and Crewe allowing for the proposed combination of references. Accordingly, it is respectfully submitted that one skilled in the art would not look to Holland, et al. together with Crewe for the purpose of achieving the claimed invention.

As stated above, the Examiner acknowledges that Crewe fails to teach multiple coating layers, and applies Landry to fill this void. Landry teaches skirts for air cushion vehicles comprising at least two sheets of non-woven fibers coated on both sides by an elastomer such as rubber. Importantly, contrary to the Examiner's assertion, Landry does not teach or suggest woven fabrics, which is a requirement of the claimed invention. See col. 2, lines 27-31 which states, "...the framework generally comprises at least two superimposed sheets or layers of flexible elements which are not woven and are substantially inextensible...". Moreover, the disclosure of Landry specifically teaches away from any use of woven fabrics to achieve their intended purposes. As recited on col. 3, lines 31-42, "[i]f the skirt shown in Fig. 1 is made from a conventional woven fabric coated with an elastomer, the frame would be composed of the filaments of the fabric with intersect each other at right angles and which have a uniform spacing with respect to each other. This would not have been significant with respect to the sheet having flexible elements oriented as circles parallel to the bases of the truncated cone. However, the other sheet would not have flexible elements oriented according to the generatrices." Accordingly, Landry states that lower mechanical resistance and substantial deformations are produced when using woven fabrics. In view of this disclosure, it is evident that Landry does not teach or suggest the use of woven fabrics in their skirt structures, but rather teaches away from it.

The fabrics of Landry also differ from the presently claimed invention in that they fail to teach or suggest a bonding layer between their fabric layer and the rubber layer on the fabric. As described at col. 3, lines 43-67, and col. 4, lines 42-60, the skirts of Landry have a rubber/fabric/rubber/fabric/rubber structure, where adjacent fabric sheets are separated from each other by an elastomeric layer. Therefore, it is respectfully submitted that the Examiner has mistakenly interpreted Landry as including the claimed fabric layer/bonding layer/rubber layer structure taught by applicant, particularly where the fabric layer comprises a woven fabric.

In view of the significant differences between claimed invention and Crewe, Holland and Landry, and the significant differences between the applied references with each other, it is respectfully submitted that the claimed invention would not be obvious to one of ordinary skill in the art. In establishing a *prima facie* case of obviousness under 35 U.S.C. 103, it is incumbent upon the Examiner to provide a reason why one having ordinary skill in the art would have been led to combine references to arrive at the claimed invention. The requisite motivation must stem from some teaching, suggestion or interest in the prior art as a whole or from knowledge generally available to one having ordinary skill in the art. See *Uniroyal, Inc. v. Rudkin Riley, Corp.*, 837 F. 2d 1044, 5 USPQ 2d 1434 (Fed. Cir. 1988); *Ashland Oil, Inc. v. Delta Resin And Refractories, Inc.*, 776 F. 2d 281, 227 USPQ 657 (Fed. Cir. 1985). It is respectfully submitted that the applied references are devoid of such motivation.

Where claimed subject matter has been rejected as obvious in view of prior art references, a proper analysis under 35 U.S.C. 103 requires consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composite or device or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out the claimed invention those of ordinary skill would have a reasonable expectation of success. See *In*

Re Dow Chemical Company 837 Fed. 2d 469, 473, 5 USPQ 2d 1529, 1531 (Fed. Cir. 1988). Both the suggestions and the reasonable expectation of success must be found in the prior art, not in Applicant's disclosure.

Applicants respectfully assert that such a suggestion and/or reasonable expectation of success could not be found in the cited references. Neither Crewe, nor Holland, et al., nor Landry, taken singularly or in combination, teach or suggest the claimed subject matter, as argued above. The Patent and Trademark Office Board of Appeals and Interferences stated the following in *Ex parte Clapp*, 227 USPQ 972 (1985), at page 973:

Presuming arguendo that the references show the elements or concepts urged by the Examiner, the Examiner has presented no line of reasoning, and we know of none, as to why the artist when viewing only the collective teachings of the references would have found it obvious to selectively pick and choose various elements and/or concepts from the several references relied on to arrive at the claimed invention. In the instant application, the Examiner has done little more than cite references to show that one or more elements or some combinations thereof, when each is viewed in a vacuum, is known. The claimed invention, however, is clearly directed to the combination of elements. That is to say, Applicant does not claim that he has invented one or more new elements but has presented claims to a new combination of elements. To support the conclusion of the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination where the Examiner must present a convincing line of reasoning as to why the artist would have found the claimed invention to have been obvious in light of the teaching of the references.

With the above directives, consideration must be given as to whether the combination of references in the manner set forth in the Office Action is proper to render the Applicant's invention obvious in view thereof.

As set forth hereinabove, Applicant's respectfully assert that the references do not teach or suggest the combination as set forth in the claims, as is evident from the plurality of differences between Applicant's invention and the cited art. Again, the combination of references must teach the claimed combination to render Applicant's claimed invention

obvious under 35 U.S.C. 103. However, as discussed above, the applied references are very different than the claimed invention and very different than each other, and there is no proper support for the Examiner's proposed combination of references. Crewe fails to teach or suggest a skirt structure having a fabric base that is bonded to another layer via a thermoplastic bonding layer, or more particularly one that is bonded to an outer rubber layer. Moreover, Crewe directly teaches away from multiple layers which are bonded together. Crewe also fails to teach the use of ultra-high molecular weight polyethylene, which was not even invented yet at the time of Crewe's invention. Holland is inapplicable both to the present invention as well as the Crewe reference, makes no mention of a potential use of their material for a hovercraft skirt, and not pertaining to structures having a rubber containing layer. Landry fails to teach or suggest woven fabrics, fails to teach or suggest a bonding layer between their fabric layer and rubber layer, and also fails to teach the use of ultra-high molecular weight polyethylene, which was not even invented yet at the time of Landry's invention.

It is respectfully submitted that the Examiner has applied an improper standard of patentability. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Likewise, the belief that one skilled in the art could form the claimed multilayered film does not suggest that one should form such a film to obtain the disclosed benefits. The Examiner argues that sufficient motivation is present in the references to combine the Crewe, Holland, et al., and Landry references to form a composite with high strength and durability. However, while said motivation is not present, in order to properly combine the references there must be motivation in the combined art to form such a material that achieves Applicant's intended goals, i.e. an abrasion-resistant material for use as a skirt for use with air cushion vehicles having at least one air chamber. Motivation for an intended desire is insufficient. In order to form a valid rejection the art must provide a motivation to take the specific action which the applicant have take toward achieving an

intended goal. Motivation or desire to achieve a stronger skirt material for use with air cushion vehicles is insufficient. The examiner must present prior art which suggests making the modifications made by the applicant toward achieving a skirt material for use with air cushion vehicles. This motivation simply is not present in the applied art.

It is respectfully submitted that the Examiner is reconstructing the art in light of Applicants' disclosure. The point in time that is critical for an obviousness determination is at the time the invention. "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). Obviousness cannot be established by hindsight combination to produce the claimed invention. *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed.Cir.1991). It is the prior art itself, and not the applicant's achievement, that must establish the obviousness of the combination. It is urged that one skilled in the art would not be imbued with an inspiration to form the claimed structure and the materials with the claimed structural layers upon a reading of the Crewe, Holland, et al and Landry references.

Applicants submit that the Examiner is looking beyond the teachings of the references and is imposing an improper "obvious to try" standard of patentability. In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schneck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983). It is respectfully asserted that the invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made.

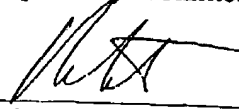
Again, to support the conclusion of the claimed combination is directed to obvious subject matter, the references must expressly or impliedly suggest the claimed combination where the Examiner must present a convincing line of reasoning as to why the artist would have found the claimed invention to have been obvious in light of the teaching of the references. However, the Examiner has done little more than cite references to show that one or more elements or some combinations thereof, when each is viewed in a vacuum, is known. The Examiner has failed to show how Applicant's new combination of elements is obvious based on a combination of the applied references.

It is respectfully urged that one skilled in the art would not be imbued with an inspiration to form the claimed structure and the materials within the claimed structural layers upon a reading of the Holland, et al and Landry references together with Crewe. For these reasons it is submitted that the rejection of claims 1-28 under 35 U.S.C. 103 over Crewe in view of Holland, et al. and further in view of Landry should be withdrawn. Such action is requested.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the Examiner believes there

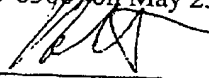
is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,



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I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office (FAX No. 571-273-8300) on May 25, 2006.



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